Amendments to the Drawings:

The attached four formal drawing sheets replace the original sheets of formal drawings.

FIG. 2: Remove the legend "A" from box 28.

FIG. 3: Remove legend R1, R3, R4, R5, R6 and R7.

FIG. 7: Remove legend DI.

FIG. 9: Remove legend Va and the legend "A" from box 28.

FIG. 10: Add legend Idta.

Attachment: Replacement Drawing Sheets (4 sheets)

REMARKS

Claims 1, 2, 4, 6-7 and 9-10 are pending. Claims 3, 5 and 8 were canceled. Claim 10 was added to further define the present invention. Claims 1 and 2 were amended to correct informalities and further define the present invention. Claim 7 and 9 were amended to be dependent on the new independent claim 10. No new matter was added. All of the language in the new independent claim 10 is explicitly or inherently supported by the original specification. For at least the reasons set forth below, withdrawal of all outstanding rejections as they relate to the amended claims and the new claim is respectfully requested.

Drawings

Figures 2, 3, 7, 9 and 10 were amended to address the drawing objections. Four replacement drawing sheets accompany this Amendment.

Specification

The title of the invention was objected to for failing to be descriptive. The title of the invention was amended to be more descriptive.

Claim Objections

Claim 1 and 2 were amended to correct the informalities cited by the Examiner. Claim 3 was canceled, thereby eliminating the informality. Withdrawal of the claim objections is respectively requested.

Prior Art Rejections

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kishimoto (JP 07-271139 A), hereafter " Kishimoto."

Claims 1, 3 and 5 were rejected under 35 U.S.C. § 102(b) as allegedly being unpatentable over U.S. Patent No. 5,365,318 (Hiraoka et al.), hereafter "Hiraoki." The rejections are traversed as they now relate to amended and new independent claims.

1. Patentability of claim 1 over Kishimoto

Amended claim 1 recites, in part,

> a current measuring section that measures a current flowing through said developing member; and
>
> a voltage-setting section that sets said developer-supplying member to a corresponding one of first voltages, the corresponding one of first voltages being set in accordance with the current in timed relation with development of the electrostatic latent image.

The voltage applied to the developer-supplying member is set in accordance with the current flowing through the developing member, as disclosed in claim 1 and in the present specification. See page 4, lines 5-26 of the present application, which reads as follows (underlining for emphasis):

> [0016] The voltage setting section sets the corresponding one of the first voltages based on a difference in the current between the non-image forming mode and the solid-image forming mode.
>
> [0017] The apparatus further includes a charging member that receives a second voltage from the voltage setting section and charges the photoconductive body. The current is measured in the non-image forming mode. When the current is larger than a predetermined value, the voltage setting section either increases an absolute value of the second voltage by a predetermined first value or decreases an absolute value of the corresponding one of the first voltages by a predetermined second value.
>
> [0018] The apparatus further includes a charging member that receives a second voltage from the voltage setting section and charges the photoconductive body. The current measuring section measures a first current that flows through the developing member and a second current that flows through the developer-supplying member, the first current and the second current being measured in the non-image forming mode. When the current is larger than a predetermined value, the voltage setting

> section either increases an absolute value of the second voltage by a predetermined first value or decreases an absolute value of each of the first voltages by a corresponding predetermined second value.

In contrast to the present invention, Kishimoto is directed to a constant-voltage control of a developing bias voltage in which a developing bias current is measured and a developing bias voltage is controllably driven in accordance with the measured developing bias current. See paragraphs [0017] and [0018] of Kishimoto (English translation), which reads as follows (underlining for emphasis):

> [0017] On the other hand, although bias voltage which was mentioned above is impressed to the development sleeve 21, since the conventional bias power supply was a source of a constant voltage, if development distance changes, development electric field will be changed and development nature will change. Consequently, image concentration will change.
>
> [0018] Drawing 8 is drawing showing the property of equipment conventionally. Since AC bias power supply is a source of a constant voltage conventionally, supply voltage VAC is always fixed, as shown in (a). On the other hand, VAC/D will be changed as it is shown in (b), since the development distance D is changed, and image concentration will change. What is necessary is just to maintain this VAC/D uniformly, in order to always keep image concentration constant. this – also taking – what is necessary will be just to make it the development current which does not correct but flows to bias power supply become fixed.

Kishimoto therefore does not disclose setting a voltage applied to a developer-supplying member in accordance with a current flowing through a developing member, as recited in claim 1 of the present invention.

In view of the differences between Kishimoto and the present invention, Kishimoto cannot anticipate amended claim 1 of the present application. Therefore, amended claim 1 is believed to be patentable over Kishimoto.

2. Patentability of claim 1 over Hiraoka

Amended claim 1 recites, in part,

> a current measuring section that measures a current flowing through said developing member; and
>
> a voltage-setting section that sets said developer-supplying member to a corresponding one of first voltages, the corresponding one of first voltages being set in accordance with the current in timed relation with development of the electrostatic latent image.

In a preferred embodiment of the present invention as recited in claim 1, a current measuring section is used to measure the current flowing through the developing member. Then, the voltage-setting section sets the developer-supplying member to a corresponding voltage that corresponds to the measured current in the developing member. See page 6, line 31 through page 7, line 20 of the present application, which reads as follows (underlining for emphasis):

> [0039] An electrostatic latent image is formed on the surface of the photoconductive drum 1. A developing roller 2 supplies toner 9 to the electrostatic latent image formed on the photoconductive drum 1. A toner-supplying roller 3 receives the toner 9 from a toner cartridge 12 and supplies the toner to the developing roller 2. A toner blade 10 forms a toner layer having a predetermined thickness on the developing roller 2. A charging roller 4 negatively charges the surface of the photoconductive drum 1 to a predetermined potential. An LED head 26 illuminates the charged surface of the photoconductive drum 1 in accordance with the print data, thereby forming an electrostatic latent image on the surface of the photoconductive drum 1. A transfer roller 5 transfers a toner image formed on the photoconductive drum 1 onto a print medium 11. A cleaning roller 7 removes residual toner remaining on the surface of the photoconductive drum 1 after transferring. <u>The current measuring section 28 detects the current supplied to the toner-supplying rollers 3. A bias power supply 16 supplies a bias voltage to the developing roller 2 and a bias power supply 17 supplies a bias voltage to the toner-supplying roller 3. The voltage setting section 27 sets the bias voltage in accordance with the current detected by the current measuring section.</u>

In contrast to the present invention, Hiraoka does not disclose a current measuring section that measures the current flowing through a developing member. In addition, Hiraoka fails to

disclose that a voltage-setting section is set to a corresponding current that is in accordance to any current measurement.

In one embodiment, Hiraoka discloses that power sources (e.g., E1, E2, E3) are controlled by an output from the comparing and controlling section 16 and their outputs are set to an initial voltage. The initial output voltages are set so that the developer T is at a specified density on the photosensitive medium 10 at room temperature. See column 5, line 65 to column 6, line 8 of Hiraoka, which reads as follows (underlining for emphasis):

> At this time, the power sources E1, E2, E3 are controlled by an output from the comparing and controlling section 16 and therefore, their outputs are set to their respective initial set output voltages. For example, the power source E1 is set to 600 V, the power sources E2 to 400 and the power source E3 to 300 V. These initial set output voltage are values which are set as output voltages of the power sources E1, E2, E3 for shifting the developer T onto the photosensitive medium 10 so as to have a specified image density during the developer T newly supplied is used in a room temperature condition.

Furthermore, Hiraoka illustrates that an optical reflectivity measurement is also used for controlling and setting the voltage levels of the power sources. This optical reflectivity measurement is based on the reflecting type density and not a current measurement. See column 9, lines 14-32 of Hiraoka, which reads as follows (underlining for emphasis):

> Upon measurement of the optical reflectivity of non-developed part on the photosensitive medium 10, if the output from the reflecting type density sensor 13 is lower than the second reference data, it indicates occurrence of blurring, and accordingly, it is required to control the developing apparatus so as to lower the developing function. In this case, the power sources E1, E2, E3 are controlled in accordance with an output from the comparing and controlling section 16 so as to lower the developing function. For example, it is considered that the output voltage of the power source E1 is decreased, and the output voltage of the power source E2 is increased. Although the output voltage of the power source E3 may be decreased, the image greatly varies even with a slight variation, similar to the condition of enhancing the developing function as mentioned above, and further, because it would cause the density of full black to be lowered, this control is not preferable.

In another embodiment disclosed in Hiraoka, temperature and humidity sensors are used for controlling and setting the power sources outputs. The comparing and controlling section 16 receives the outputs from the sensors, which are compared to previously stored control data from the data memory 17. This comparison set the output currents of the power sources (e.g., E1, E2, E3) to the specified value in order to develop an image. The output currents of the power sources are set in accordance to the stored data and the temperature and humidity sensors measurement. See column 12, line 30-59 of Hiraoka, which reads as follows (underlining for emphasis):

> In the thus arranged developing apparatus in the second embodiment, an image density setting process is carried out prior to an image formation process, at the time of starting the operation of the image recording apparatus. In more detail, the comparing and controlling section 16 receives outputs from the temperature sensor 21 and the humidity sensor 22, that is, data of using circumstance prior to image forming process base on image data, and reads previously stored control data for the power sources E1, E2, E3 from the data memory 17 in accordance with the outputs so as to control the output currents of the power sources E1, E2 and the output voltage of the power source E3 to specified values in order to stably develop an image, irrespective of variations in the surrounding circumstance.
>
> The control of the power sources E1, E2, E3 in accordance with variations in temperature and humidity is made in such a way that one or both of the output currents of the power sources E1, E2 are increased, for example, at high temperature and high humidity, but one or both of the output currents of the power sources E1, E2 are decreased at low temperature and low humidity. It is also possible to control variation in the output voltage of the power source E3, but it is not preferable to control only variation in the output voltage of the power source E3 due to the same reason as that of the developing apparatus in the first embodiment. However, the control of the outputs of the power sources E1, E2, E3 combined can secure a stable developing function.

In sum, Hiraoka fails to disclose all of the claimed elements of the present invention. Specifically, Hiraoka does not provide a current measuring section that measures the current flowing through the developing member. The Examiner asserts that this limitation is inherently disclosed in column 12, lines 13-22. The Applicants respectively disagree as described above.

The output currents referred to in column 12, lines 13-22 are not directly measured by a current measuring section. In fact, the output currents disclosed in Hiraoka are controlled and set in accordance to optical reflectivity, temperature and humidity measurements.

In view of absence of the current measuring section, Hiraoka cannot anticipate the amended claim 1. Amended claim 1 is believed to be patentable over Hiraoka.

3. Patentability of newly independent claims 4 and 10 over Hiraoka

Independent claims 4 and 10 recite, in part,

> a current measuring section that measures a current flowing through at least one of said developing member and said developer-supplying member;

As discussed above, neither Hiraoka nor Kishimoto discloses a current measuring section that measures a current flowing through a developing member. Furthermore, neither Hiraoka nor Kishimoto discloses a current measuring section that measures a current flowing through a developer-supplying member.

4. Patentability of dependent claims

Hiroaka does not make up for the deficiencies in Kishimoto, therefore the dependent claims are believed to be patentable over the applied references for at least the reason that they are dependent upon allowable base claims and because they recite additional patentable elements and limitations.

Allowable Subject Matter

The Examiner has stated that claims 4 and 6-9 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Insofar as the Examiner's rejections were fully addressed, the instant application is in condition for allowance. Issuance of a Notice of Allowability of all pending claims is therefore earnestly solicited.

Respectfully submitted,

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(Date)

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